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EXAMINER
CHEN, WENPENG

ART UNIT	PAPER NUMBER
2624	

DATE MAILED: 08/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _09 June 2003_ .

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-116_ is/are pending in the application.

   4a) Of the above claim(s) _31-116_ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-30_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _12 November 1999_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

   If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

   a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)   4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . 6) ☐ Other: .

Election/Restrictions

1.   Applicant's election with traverse of Claims 1-20 in Paper #7 is acknowledged. The traversal is on the ground(s) that the claims of all of the identified group are directed to substantially the same invention. This is not found persuasive because of the following reasons. As pointed out in paper #6, the restriction is based on that Inventions I and II are related as combination and subcombination. First, two criteria for the type of restriction based on combination/subcombination were given in paper #7. The Applicants did not provide reasons why the two criteria are not met. Second, as pointed out in paper #7, the subcombination has separate utility such as correcting distortion of an object based on other features than brightness. Although search area of prior art for Group I and Group II may have some common ground, each has its own distinct additional search area for determining its own patentability. Therefore, this restriction is reasonably justified due to this additional burden for searching prior art.

     The requirement is still deemed proper and is therefore made FINAL.

Drawings

2.   Figures 30-32 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3.   The drawings are objected to because of the following informalities.

-- In Fig. 13, there are two xmin(i,j). The Examiner believes that the one outputted from element 24D shall be changed to xmm(i,j).

Correction is required.

Specification

4.   The disclosure is objected to because of the following informalities.

-- The term "increases" in line 20, page 22 shall be changed to "decreases".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6.   Claims 2-4 and 17-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for the following reasons.

There are insufficient antecedent bases for the following limitations.

-- Claim 2 recites "the determination results" in line 5 and "the characteristic amounts" in line 7.

-- Claim 3 recites "the low frequency components" in line 6.

-- Claim 4 recites "the low frequency components" in line 8.

-- Claim 17 recites "the characteristic amounts" in line 7.

-- Claim 18 recites "the low frequency components" in line 5.

-- Claim 19 recites "the low frequency components" in line 6.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8.   Claims 1-4, 11, 14-19, 26, and 29-30 are rejected under 35 U.S.C. 102(b) as

being anticipated by Tamura et al. (US patent 5,517,333.)

Tamura teaches an image processing apparatus capable of correcting the gradation of

image data, comprising:

-- area discrimination means for discriminating areas to which the image data belong and

outputting discrimination results; (column 8, line 57 to column 9, line 33; Figs. 4 and 14; LPF

1305 is the area discrimination means.)

-- coefficient calculation means for outputting correction coefficients to be used for correction of pixel values of the image data based on the discrimination results; (column 8, line 57 to column 9, line 33; Figs. 4 and 14; Circuit 1304 is the coefficient calculation means.)

-- correction means for correcting the pixel values of the image data with the correction coefficients; (column 4, line 45 to column 5, line 17; column 8, line 57 to column 9, line 33; Figs. 4 and 14; Block 107 is the correction means.)

- wherein said area discrimination means detects a characteristic amount indicative of a characteristic of a predetermined range neighboring to each of the image data and outputting the discrimination result, and said coefficient calculation means outputs the correction coefficients based on the characteristic amounts received from said area discrimination means; (column 4, line 45 to column 5, line 17; column 8, line 57 to column 9, line 33; Figs. 4 and 14; especially column 9, lines 4-8)

- wherein said area discrimination means includes a low-pass filter for extracting a low frequency component of each of the image data, and said coefficient calculation means produces the correction coefficients in response to the low frequency components received from said low-pass filter; (column 4, line 45 to column 5, line 17; column 8, line 57 to column 9, line 33; Figs. 4 and 14; LPF)

-- wherein said area discrimination means includes quantization means for quantizing the image data, and a low-pass filter for extracting a low frequency component from each of the image data quantized by said quantization means, and said coefficient calculation means produces the correction coefficients in response to the low frequency components received from said low-pass filter; (column 4, line 45 to column 5, line 17; column 3, line 63 to column 4, line 19; The A/D converter provides the quantization means.)

-- wherein said correction means multiplies the pixel values of the image data by the

correction coefficients to correct the pixel values of the image data; (multipliers 107 of Fig. 4)

-- wherein the image data are data obtained by sampling a brightness signal and a color

difference signal with a predetermined frequency. (column 12, lines 22-51; Figs. 1, 4, 20; The

signal of a CCD is clocked out at a predetermined frequency. Therefore, the brightness signal

and the color difference signals are sampled at the predetermined clocked frequency.)

The above cited passages also teach the corresponding method Claims 16-19, 26, and 29-

30.

9.   Claims 1-10 and 16-25 are rejected under 35 U.S.C. 102(e) as being anticipated

by Takamori (US patent 6,252,995.)

Takamori teaches an image processing apparatus capable of correcting the gradation of

image data (Fig. 5; Takamori modifying gradation of an image and thus correcting the gradation

of the image), comprising:

-- area discrimination means for discriminating areas to which the image data belong and

outputting discrimination results; (column 6, lines 21-62; Fig. 5; The average density level is the

discrimination results.)

-- coefficient calculation means for outputting correction coefficients to be used for

correction of pixel values of the image data based on the discrimination results; (Blocks 42 and

44' of Fig. 5; column 6, lines 21-62)

-- correction means for correcting the pixel values of the image data with the correction

coefficients; (column 6, lines 21-62; Fig. 5; The value h is outputted.)

- wherein said area discrimination means detects a characteristic amount indicative of a characteristic of a predetermined range neighboring to each of the image data and outputting the discrimination result, and said coefficient calculation means outputs the correction coefficients based on the characteristic amounts received from said area discrimination means; (column 6, lines 21-62; Fig. 5; The average density level is determined from a predetermined range, such as 5 x5 and 11 x 11 areas.)

- wherein said area discrimination means includes a low-pass filter for extracting a low frequency component of each of the image data, and said coefficient calculation means produces the correction coefficients in response to the low frequency components received from said low-pass filter; (column 6, lines 21-62; Fig. 5; Averaging is a LPF process.)

-- wherein said area discrimination means includes quantization means for quantizing the image data, and a low-pass filter for extracting a low frequency component from each of the image data quantized by said quantization means, and said coefficient calculation means produces the correction coefficients in response to the low frequency components received from said low-pass filter; (column 2, lines 32-60; The A/D converter provides the quantization means.)

-- wherein said area discrimination means includes a plurality of low-pass filters for individually extracting low frequency components of each of the image data, and signal composition means for producing single composite signals based on the low frequency components outputted from said low-pass filters, and said coefficient calculation means produces the correction coefficients based on the composite signals received from said signal composition means; (column 6, lines 21-62; blocks 30 and 32 of Fig. 5; Each of the average density values is generated by a LPF. Block 40 produces the composite signals.)

-- wherein said signal composition means weighted averages the low frequency components outputted from said low-pass filters to produce the composite signals; (column 6, lines 21-62; blocks 30 and 32 of Fig. 5; Block 40 produces the composite signals. One weight is +1, the other is -1.)

-- wherein said signal composition means weighted adds the low frequency components outputted from said low-pass filters with weighting coefficients set in advance to produce the composite signals; (column 6, lines 21-62; blocks 30 and 32 of Fig. 5; Block 40 produces the composite signals. One weight is +1, the other is -1.)

-- wherein said area discrimination means includes a plurality of low-pass filters for individually extracting low frequency components of each of the image data, and said coefficient calculation means includes partial coefficient calculation means for producing coefficients for correction from the low frequency components outputted from said low-pass filters, and coefficient composition means for producing the correction coefficients based on the coefficients for correction. (column 6, lines 21-62; blocks 30 and 32 of Fig. 5; Each of the average density values is generated by a LPF. Block 40 produces the composite signals. Because the cited passage teaches the function of the recited partial coefficient calculation means, the Examiner considers that Takamori also teaches this feature.)

The above cited passages also teach the corresponding method Claims 16-25.

Claim Rejections - 35 USC § 103

10.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that

the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11.   Claims 13 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Tamura et al. (US patent 5,517,333) in view of Ohtsubo et al. (US patent 5,170,249.)

Tamura teaches the Parental Claims 1 and 16. However, Tamura does not teach explicitly

the steps related to data sampling and superposition recited in the above-listed claims.

Ohtsubo teaches an imaging system to provide;

-- image data for standard TV systems, wherein an amplitude modulated color signal is

sequentially superposed on a brightness signal, with a predetermined frequency. (Figs. 1 and 11;

column 10, lines 61 to column 11, line 20.)

It is desirable to correct gradation of existing image data in a standard TV format. It

would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply

Tamura's gradation correction method to improve quality of image data having a standard TV

format data taught by Ohtsubo, because the combination improves quality of the existing image

data. The combination thus teaches processing image data wherein the image data are data is

obtained by sampling a signal and for the data wherein an amplitude modulated color signal is

sequentially superposed on a brightness signal, with a predetermined frequency.

12.   Claims 12 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Tamura et al. (US patent 5,517,333) in view of Morikawa (US patent 5,550,955.)

Tamura teaches the Parental Claims 1 and 16. However, Tamura does not teach explicitly

the steps related to bit number recited in the above-listed claims.

Morikawa teaches an imaging correction system wherein the number of bits of the image

data outputted from a correction means is smaller than the number of bits of the image data

inputted to an image processing apparatus. (column 2, lines 41-52; column 5, line 25 to column

6, line 7)

It is desirable to reduce false contour in gradation conversion. Morikawa points out that

the artifact can be reduced with having data with more bits than the bits of data delivered to an

output device. It would have been obvious to one of ordinary skill in the art, at the time of the

invention, to apply Morikawa's teaching to use n bits for all the data involving the gradation

correction in Tamura's gradation correction method and output m bits for further processing,

wherein $m < n$, because the combination improves quality of the processed image with reducing

false contour.

Conclusion

13.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Wenpeng Chen whose telephone number is 703 306-2796. The

examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David K Moore can be reached on 703 308-7452. The fax phone numbers for the

organization where this application or proceeding is assigned are 703-872-9314 for regular

communications and 703-872-9314 for After Final communications. TC 2600's customer service

number is 703-306-0377.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is 703 305-4700.

Wenpeng Chen
Primary Examiner
Art Unit 2624

August 4, 2003